

PI 1039945

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APPLICATION NUMBER: 60/446,321

FILING DATE: February 06, 2003

RELATED PCT APPLICATION NUMBER: PCT/US03/18698

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# PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No. EV221471031US

## INVENTOR(S)

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Martin E. Martin	Laker Kaufmann	West Bloomfield, MI Beverly Hills, MI

☐ Additional inventors are being named on the separately numbered sheets attached hereto

## TITLE OF THE INVENTION (280 characters max)

WIPER/TACK CLOTH WITH ANTI-STATIC PROPERTIES FOR PAINTING OPERATION AND METHOD OF MANUFACTURE THEREOF

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## ENCLOSED APPLICATION PARTS (check all that apply)

☒ Specification Number of pages

5

☐ CD(s), Number

☒ Drawing(s) Number of sheets

1

☐ Other (specify)

☐ Application Data Sheet. See 37 CFR 1.76

## METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT

☐ Applicant claims small entity status. See 37 CFR 1.27.

☒ A Check or money order is enclosed to cover the filing fees

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No

☐ Yes, the name of the U.S. Government agency and the Government contract number are:

Respectfully submitted

SIGNATURE

*Robert M. Gamson*

Date

02/06/03

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32,986

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Docket Number:

03034-PPA

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Docket No. 03034-PPA  
Inventors: Laker et al

# WIPER/TACK CLOTH WITH ANTI-STATIC PROPERTIES FOR PAINTING OPERATION AND METHOD OF MANUFACTURE THEREOF

- I. Problem: Preparation of metal and plastic surfaces prior to painting requires removal of static electrical charges and of dirt and dust particulates. Use of "new clear coat" paint has aggravated the static charge problem.
- II. What Have Other's Tried:
  - A. Resin based tack cloths.
  - B. Solvent wiping with both a pre-saturated wiper and a dipped lint free wiper.
  - C. Dry wipers. (both non-woven and woven products).
- III. Solution: Develop a lint free anti-static treated wiper/tack cloth that captures and removes particulate.
- IV. Description of Preferred Embodiment
  - A. Substrate

Knitted continuous filament polyester that has a knitted edge to eliminate lint. It is possible a product could be developed that used either a woven or a non-woven substrate, but the dirt and dust capturing properties might be compromised. There are presently anti-static cotton wipers, but they will generate lint which creates defects in all paint applications. Non-woven substrates, if lint free, are believed to be not as absorbent. If the non-woven is made more absorbent, it tends to generate fibers.
  - B. Treatment

The substrate is treated with an anti-static and dirt and dust capturing agent.

Specific Chemicals

    - A. Before Curing

Docket No. 03034-PPA

Inventors: Laker et al

1.	Water	50% to 75%
2.	Isopropyl alcohol	10% to 20%
3.	Propylene glycol	02% to 08%
4.	Quaternary ammonium salt	02% to 08%
5.	Additives	< 01%

B. After Curing

1.	Traces of water	01% to 04%
2.	Traces of propylene glycol	02% to 05%
3.	Quaternary ammonium salt	90% to 95%

As shown in FIG. 1, a roll of substrate approximately 740 yards long, and approximately 10.5 inches wide, is unwound and guided through a bath containing the chemical agents. After the bath, the substrate is squeezed between two rollers under high pressure to remove excess chemical. Pressure is indicated on a hydraulic gauge on the pump, which adds pressure to the cylinders that push the rollers together creating the pressure. The pump is set at 400 PSI Approximately 1250 lbs. of force is applied by each cylinder or 2500 lbs. of total force. After squeezing the substrate, it passes through an oven at a speed of 40 feet per minute at a temperature range of 280°F to 350°F. This process cures the product. The product then gets re-rolled and is taken to the cutting area. It is cut into lengths of approximately 18 inches with a hot wire, which cuts and seals the two cut edges to eliminate loose fibers. Length can vary based upon customer needs. The substrate usually shrinks to a width of approximately 9 inches during curing.

V. Features & Advantages

- A. First lint-free wiper to tackle static problems in automotive paint application.
- B. Reduces static charge.
- C. Removes dirt and dust particulate and reduces paint defects.
- D. Eliminates marring caused by resin transfer (since there is no resin).
- E. Product is not as pressure sensitive when used by operator. Reduces operator error caused by applying too much pressure when wiping.

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- F. More user friendly to operator drag when wiping.
- G. All edges are either knitted or sealed which reduces loose fibers.
- H. Has extended shelf life when opened as compared to previous so-called pre-saturated wipers.
- I. Neutralizes negative electrostatic charges that make paint impossible to adhere to plastic or metal surfaces.
- J. Product does not release any volatile organic compounds (voc).
- K. Other Possible Uses:
  - 1. Removal of static in electronic manufacturing (computers, TVs, stereos, etc.).
  - 2. Possible wiping use in clean room applications.
  - 3. Possible use of removing water in various wiping applications.

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What is claimed is:

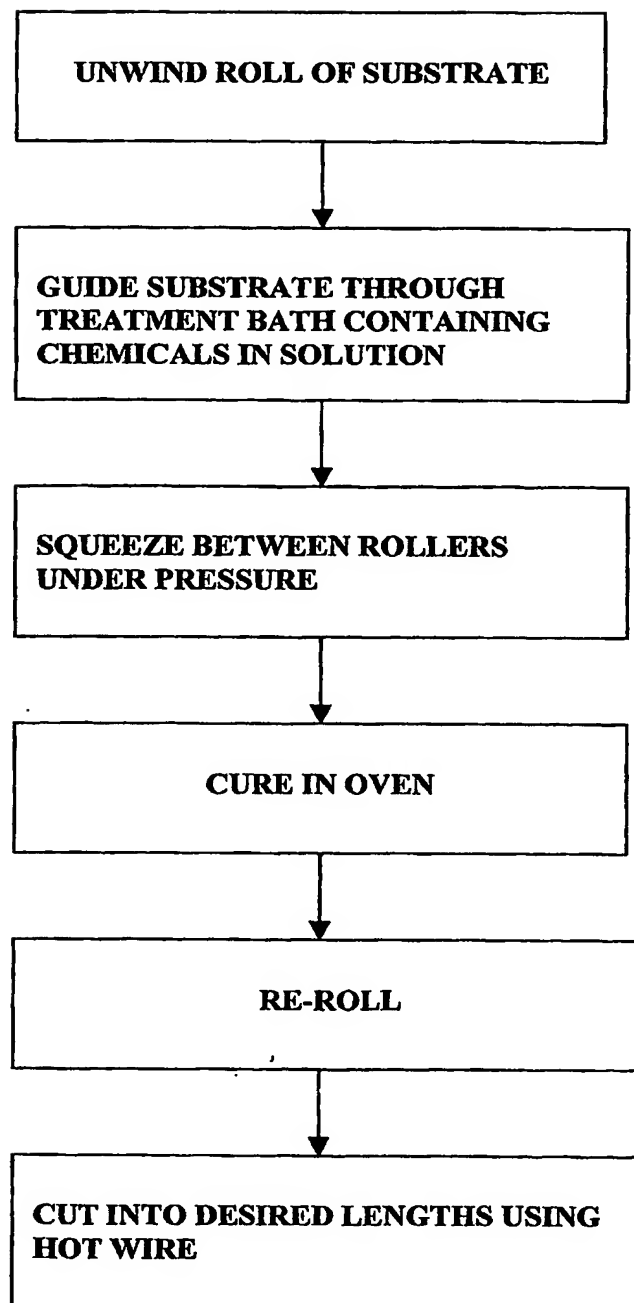
1. In a wiper/tack cloth particularly for use in painting operations, the improvement comprising a substrate formed by a knitted continuous polyester filament, the substrate being treated with an anti-static agent, such that the wiper/tack cloth is anti-static.
2. The improvement of claim 1, wherein the substrate is also treated with a dirt-encapsulating agent, such that the wiper/tack cloth captures and removes dirt and dust particulates.
3. The improvement of claim 2, wherein that the substrate has knitted edges to eliminate lint.
4. The improvement of claim 1, wherein the anti-static agent comprises a quaternary ammonium salt.
5. The method of making a lint-free anti-static wiper/tack cloth, comprising the steps of providing a substrate, passing the substrate through a bath containing chemical agents, squeezing the substrate to remove excess chemicals, passing the substrate through an oven for curing the wiper/tack cloth, and cutting it into desired lengths such that the substrate becomes anti-static and additionally will capture dirt and dust particulates.
6. The method of claim 5, wherein the substrate comprises a roll of substrate which is unwound and passed through the bath.

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7. The method of claim 6, wherein the substrate passes through the bath at approximately 40 feet per minute and at a temperature between approximately 280°F to 350°F.
8. The method of claim 5, wherein the substrate comprises a knitted continuous polyester filament.
9. The method of claim 5, wherein the wiper/tack cloth is cut by a hot wire which cuts and seals the two cut edges to eliminate loose fibers.
10. The method of claim 5, wherein the bath is provided with an anti-static chemical agent comprising a quaternary ammonium salt.
11. The method of claim 5, wherein the substrate is squeezed between two rollers wherein approximately 2500 lbs. of total force is applied to the rollers.
12. An anti-static dust particulate capturing wiper/tack cloth made in accordance with the method of claims 5, 6, 7, 8, 9, 10 or 11.
13. The dirt and dust particulate-capturing wiper/tack cloth of claim 12 which is intended, primarily, for use in painting operations.

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**FIG. 1**



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